

REMARKS

Fig. 1 of the drawings is amended, per the attached Submission, to overcome a noted informality contained therein. A new formal drawing, incorporating the requested amendment, will follow once the requested drawing amendment is approved by the Examiner. If any further amendment to the drawings of this application is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

Claims 1-4 and 6 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The subject matter of the rejected claims is accordingly revised and rewritten as new claims 7-24. The newly entered claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejection(s) and are not directed at distinguishing the present invention from the art of record in this case.

Next, the claims are objected to under 37 CFR 1.75(c) due to improper dependency. The newly entered claims are believed to overcome all of the raised 37 CFR 1.75(c) rejections.

Claims 1 and 5-6 (now claims 7-24) are rejected, under 35 U.S.C. § 103(a), as being unpatentable over DiVita '080 in view of Boniort '147. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

DiVita '080 discloses a method of treating optical waveguide fibers. According to this method, the optical fibers are treated with ultraviolet radiation for the purpose of creating a strong oxidizing agent. The fiber is drawn into a furnace having an ultraviolet radiation source. The inside of the furnace is an environment specifically containing oxygen. The ultraviolet radiation causes the oxygen within the furnace to continuously generate and destroy ozone. This process of formation and destruction of ozone produces atomic oxygen which is an extremely good oxidizing agent. So as the fiber passes through the furnace, the fiber becomes

oxidized which results in a clean optical fiber. In other words, the sole purpose of having the ultraviolet radiation is to form and destroy ozone within the furnace to clean the optical cable.

It should be noted that in the process as disclosed by DiVita '080, the heating by the furnace and the radiation of the fiber with ultraviolet radiation occur simultaneously. In no instance is the heat applied to the fiber either before or after irradiation with the ultraviolet radiation. If the heat and radiation were applied at different times, it is respectfully submitted that the process of formation and destruction of ozone would be defeated.

Boniort et al. '147 discloses a method and apparatus for heating silica fibers in a fiber-drawing installation. The purpose for heating the fiber, according to this citation, is to enable the silica fiber to be coated with a carbon deposit. This carbon coating protects the silica fiber from damage caused by external sources.

Boniort et al. '147 teaches the use of UV exposure to the coated silica in Figure 1. However, it is unclear of the reason for using UV radiation. Column 3, lines 40-43 states that the fiber fitted with its carbon deposit passes through sheathing dies and UV irradiating boxes. Column 3, line 41 then declares the sheathed fiber "completed", it can therefore be assumed that the UV radiation helps complete the sheathing process.

Neither DiVita '080 nor Boniort et al. '147 in any way teaches, suggests or discloses the use of UV radiation for causing structural defects in the silica fiber, as currently claimed in the pending claims. Even if it could be argued that either DiVita '080 and/or Boniort et al. '147 somehow teach using a UV radiation to cause structural defects, and such is not conceded, neither DiVita '080 nor Boniort et al. '147 in any way teach, suggest or disclose using ultraviolet radiation in the ranges of the wavelength and intensity as currently recited in the presently pending dependent claims. The optimal wavelength, as claimed, is within the range of between 50 to 300 nanometers. This range is specifically called for in some of the dependent claims because, as stated in the specification, when the wavelength is above this range, the UV resistance and radiation resistance tends to decrease, and when the wavelength is

below this range, the effectiveness of the UV resistance and radiation resistance improvement is limited.

In addition, neither DiVita '080 nor Boniort et al. '147 teach, suggest or disclose the step of "changing an average bond angle of the Si-O-Si network in the silica glass fiber with the heat" as currently recited in claim 12 and claim 13-24 which depend therefrom.

In order to emphasize the above noted distinctions between the presently claimed invention and the applied art, independent claim 7 of this application now recite the features of

"spinning a silica glass fiber from a base material; irradiating the silica glass fiber with ultraviolet radiation to purposefully cause multiple structural defects in the silica glass fiber; removing the multiple structural defects from the spinning step of the silica glass fiber by at least residual heat from the spinning process of the silica glass fiber and, if necessary, further heating the silica glass fiber to improve a resistance of the silica glass fiber to ultraviolet radiation; and applying an insulation coating around the silica glass fiber; optionally further heating the fiber to remove the structural defects either prior to or after applying the insulation coating."

New independent claim 9 recites

". . .b) irradiating the spun fiber, transversely of the axis, to cause multiple structural defects adjacent an irradiated portion of the fiber; c) heating the irradiated portion of the spun fiber to remove the multiple structural defects therein and to decrease resistance to transmission of ultraviolet radiation through the irradiated portion of the fiber; d) continuing to irradiate the spun fiber, as the spun fiber passes through an irradiation location, and using additional heat to remove the multiple structural defects; e) applying an insulation coating around the silica glass fiber, f) optionally further heating the

fibers to remove the structural defects either prior to after applying the insulation coating."

Lastly, new independent claim 12 now recites the features of

"heating and spinning a silica glass fiber from a base material of silica glass such that the silica glass fiber has an Si-O-Si network; following the heating and spinning step, irradiating the silica glass fiber with ultraviolet radiation to cause a plurality of structural defects in the silica glass fiber; increasing an average bond angle of the Si-O-Si network in the silica glass fiber with at least the heat created by a spinning furnace during the spinning process to remove the plurality of structural defects in the silica glass fiber thus improving ultraviolet resistance of the silica glass fiber. . .".

Such features are believed to clearly and patentably distinguish the presently claimed invention from all of the art of record, including the applied art.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the DiVita '080 and/or Boniort '147 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating



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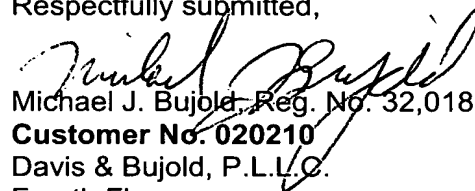
the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,


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By: 

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